

REMARKS

Claim Rejections

The Examiner has rejected claims 1-5, 7, 9-24, 26-28 under 35 USC 102(b) as unpatentable over Zampini et al. (U.S. Patent No. 6,503,689). The Examiner has rejected claims 1-5, 7, 16-24, 26-28 under 35 USC 102(b) as unpatentable over Enomoto et al. (U.S. Patent Publication No. 2004/0072420 A1). The Examiner has rejected claims 1-24, 26-30 under 35 USC 102(b) as unpatentable over Gutsche et al. (U.S. Patent No. 6,033,977) in view of Zampini et al. (U.S. Patent No. 6,503,689). The Applicant respectfully traverses. The cited references fail to teach or render obvious all of the elements of the claimed invention. In particular, the cited references fail to teach all of the elements of independent claims 1, 12, 18, and 25.

Independent claim 1 claims “*applying an anti-reflective coating comprising a polymer-based material containing a reflective material*” and claim 18 claims an antireflective coating comprising “*an additive to alter a radiation beam path comprising a reflective material.*” In contrast, Zampini and Enomoto teach anti-reflective coatings that include light absorbing materials and not reflective materials. Zampini teaches polymeric particles that include a chromophore that is a group that absorbs and/or attenuates the desired wavelength of the radiation used to image the photoresist (Col. 5 lines 47 – 52.) Enomoto teaches an anti-reflective coating composition containing a light absorbing compound and/or a light absorbing resin (paragraph 37.) Gutsche merely teaches the use of an anti-reflective coating (ARC) in the manufacture of a dual damascene structure. Therefore, the Applicant respectfully submits that independent claims 1 and 18, and the claims that depend upon and incorporate the limitations of claim 1 and 18, are not anticipated or rendered obvious by the cited references.

Independent claim 12 claims a method where a first opening is etched after patterning a photoresist formed above a bottom anti-reflective coating comprising a polymer and a plurality of refractive polymer beads and filling the first opening with a sacrificial anti-reflective coating comprising a spin-on-polymer and a plurality of refractive polymer beads. The cited references all fail to teach these elements. In contrast, Gutsche teaches a method of manufacturing a dual damascene structure by etching sacrificial studs over conductive lines, depositing an intermetal dielectric around the sacrificial studs, and then etching the sacrificial studs to form vias over the conductive lines. Zambini and Enomoto fail to teach a method that is in any way similar to method claimed in Claim 12. As such, the Applicant respectfully submits that claim 12, and the claims that depend upon and incorporate the limitations of claim 12, are not anticipated or rendered obvious by the cited references.

Claim 25 claims an anti-reflective coating comprising a base material and a multi-layer mirror. The Examiner indicated that the original claim 25 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form because none of the prior art references of record disclose the claimed multi-layer mirror as an additive in the ARC. Therefore, the Applicant respectfully submits that independent claim 25 and the claims that depend on claim 25 are in condition for allowance.

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If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

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